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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,537	05/30/2001	Izrail S. Gorian	8506	1323

20349 7590 11/29/2004  
POLAROID CORPORATION  
PATENT DEPARTMENT  
1265 MAIN STREET  
WALTHAM, MA 02451

EXAMINER

LEE, TOMMY D

ART UNIT PAPER NUMBER

2624

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/870,537

**Applicant(s)**

GORIAN ET AL.

**Examiner**

Thomas D. Lee

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 20010824, 20021209.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-14 and 19-32 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: a step for determining properties, including local properties, of a digital image. Step (G) of base claim 1 includes “varying the threshold *according to properties of the digital image*; and selectively changing the coefficient in step (E) *according to the local properties of the digital image*.” (italics added) This step requires that the properties of the image data be determined beforehand, but no such determination is recited in the claim. Likewise, base claim 19 requires that properties, including local properties, of the digital image be determined at some point prior to the varying and changing steps.
3. Claims 15-18 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a means for determining properties, including local properties, of a digital image. As with base claims 1 and 19, base claim 15 requires that properties, including local properties, of the digital image be determined beforehand, since the threshold and adaptation coefficients are selectively varied in accordance with these properties. No means are recited for determining properties of the image data.

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4. Claims 6, 7, 24 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6 and 7 recite a third function of local values of a digital image, without prior recitation of first and second functions in these claims or base claim 1 (claim 4 recites first and second functions, but claims 6 and 7 do not depend from claim 4). Likewise, claims 24 and 25 recite a third function of local values of a digital image, without prior recitation of first and second functions in these claims or base claim 19.

***Allowable Subject Matter***

5. Claims 1-32 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

6. The following is a statement of reasons for the indication of allowable subject matter: No prior art has been found to disclose or suggest an error diffusion process including steps of obtaining a difference between the value at a pixel and a filtered value at the pixel, said difference being a threshold input, in combination with steps of varying the threshold according to properties of the digital image and selectively changing adaptation coefficients according to local properties of the digital image, as recited in base claims 1, 15 and 19.

U.S. Patent 5,208,684 (Itoh), which most closely resembles applicant's invention, is an error diffusion process providing a Laplacian calculation unit which filters an object pixel and the result along with the object pixel density value is input into a binary-coding

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unit (note Figs. 9-11). However, in Figs. 9 and 11 only the filtered data is used as the threshold value, and in Fig. 10 the threshold value is fixed.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,086,484 (Katayama et al.) discloses an error diffusion process wherein a threshold is switched between two types, one of which varies in width of variation corresponding to density of the input image.

U.S. Patent 5,809,177 (Metcalf et al.) discloses an error diffusion process wherein the multi-level gray signal is modified with either random noise multiplied by a gray level dependent coefficient or by a predetermined value from a checkerboard or vertical line pattern.

U.S. Patent 6,233,360 (Metcalf et al.) discloses an error diffusion process wherein a histogram of the image is generated and the actual background and black reference values are determined.

U.S. Patent 6,501,566 (Ishiguro et al.) discloses an error diffusion process wherein a density histogram is generated according to pixels included in the input image data.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Lee whose telephone number is (703) 305-4870. The examiner can normally be reached on Monday-Friday (7:30-5:00), alternate Fridays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (703) 308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thomas D. Lee  
Primary Examiner  
Art Unit 2624

tdl  
November 24, 2004